

**V. REMARKS**

Claims 1, 3 and 4 are rejected under 35 USC 103 (a) as being unpatentable over JP 10-95089 or Chikaki et al. (U.S. Patent No. 6,149,757) in view of Stuhldreher (U.S. Patent No. 4,943,609) or Lugmair et al. (U.S. Patent Application Publication No. 2002/0014546). Claim 2 is rejected under 35 USC 103 (a) as being unpatentable over JP 10-950894 or Chikaki and Stuhldreher as applied to claims 1, 3 and 4 and further in view of Custer et al. (U.S. Patent No. 3,857,775). The rejections are respectfully traversed.

Claim 1, as amended, is directed to a laminating apparatus for laminating a solar battery panel that includes an upper chamber and a lower chamber which are partitioned by a diaphragm, a heater board provided in the lower chamber and a diaphragm which partitions the upper chamber and the lower chamber. Claim 1 recites that the diaphragm is capable of freely expanding for pressurizing the object to be laminated which is mounted on the heater board. Further, claim 1 recites that the diaphragm is constituted of a single layer of butyl rubber. Additionally, claim 1 recites that the solar battery panel has a structure with strings sandwiched with a filler between a reinforcing material and a cover glass and the filler is ethylene-vinyl acetate (EVA) resin. Furthermore, claim 1 recites that the laminating apparatus is tightly closed, an inside of the upper chamber and an inside of the lower chamber are evacuated thereafter and atmospheric pressure is introduced into the upper chamber to expand the diaphragm downward, thereby sandwiching and pressurizing the solar battery panel between an upper surface of the heater board and the diaphragm.

It is respectfully submitted that that none of the applied art, alone or in combination, teaches or suggests the features of claim 1 as amended. Specifically, it is respectfully submitted that the applied art, alone or in combination, fails to teach or suggest that the laminating apparatus is tightly closed, an inside of the upper chamber and an inside of the lower chamber are evacuated thereafter and atmospheric pressure is introduced into the upper chamber to expand the diaphragm downward, thereby sandwiching and pressurizing the solar battery panel between an

upper surface of the heater board and the diaphragm. Thus, it is respectfully submitted that one of ordinary skill in the art could not combine the features of the applied art to arrive at the claimed invention because the applied art is devoid of all the features of the claimed invention. As a result, it is respectfully submitted that claim 1 is allowable over the applied art.

In the invention of the present application, the diaphragm is constituted of a single layer of butyl rubber. Regarding this point, in the cited document JP 10-95089, although there is a description about Viton or the like, there is no description about butyl rubber that is more resistant to deterioration or the like. Further, the cited document Lugmair et al. has a description about butyl rubber, but it is not an invention related to a laminating apparatus. The cited document Stuhldreher has, similarly, a description of butyl rubber. However, it is merely described as a material for a heat resistant bladder for repairing tires or the like, and is not an invention related to a laminating apparatus.

The laminating apparatus according to the present invention has a structure in which, in a state that an inside of the upper chamber and an inside of the lower chamber are evacuated, atmospheric pressure is introduced into the upper chamber to expand the diaphragm downward. In the laminating apparatus evacuated in this manner, the diaphragm is expanded intensely downward by introducing the atmospheric pressure, and wraps the entire solar battery panel on the heater board. With the diaphragm, to be expanded downward intensely, being constituted of butyl rubber, the invention of the present application allows to extend the lifetime of the diaphragm in such a laminating apparatus to be evacuated. Further, due to the extended lifetime of the diaphragm, the frequency of replacing the diaphragm can be lowered, and thus it is economical.

Claims 2-4 depend from claim 1 and includes all of the features of claim 1. Thus, it is respectfully submitted that the dependent claims are allowable at least for the reason claim 1 is allowable as well as for the features they recite.

Withdrawal of the rejections is respectfully requested.

Further, Applicants assert that there are also reasons other than those set forth above why the pending claims are patentable. Applicants hereby reserve the right to submit those other reasons and to argue for the patentability of claims not explicitly addressed herein in future papers.

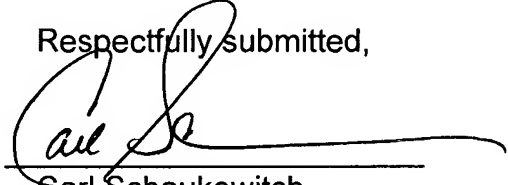
In view of the foregoing, reconsideration of the application and allowance of the pending claims are respectfully requested. Should the Examiner believe anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' representative at the telephone number listed below.

Should additional fees be necessary in connection with the filing of this paper or if a Petition for Extension of Time is required for timely acceptance of the same, the Commissioner is hereby authorized to charge Deposit Account No. 18-0013 for any such fees and Applicant(s) hereby petition for such extension of time.

Respectfully submitted,

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By:

  
Carl Schaukowitch  
Reg. No. 29,211

**RADER, FISHMAN & GRAUER PLLC**  
1233 20<sup>th</sup> Street, N.W. Suite 501  
Washington, D.C. 20036  
Tel: (202) 955-3750  
Fax: (202) 955-3751  
Customer No. 23353

Enclosure(s): Amendment Transmittal  
Petition for Extension of Time (one month)

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